EXHIBIT E1

Warfarin Feral Hog Bait: 3 Years of Field Testing

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GOOD AFTERNOON: FIRST, AS YOU LIKELY HAVE HEARD, A NUMBER OF ENVIRONMENTAL GROUPS AND WILD BOAR MEATS SUED THE TX DEPT OF AGRICULTURE TO PROHIBIT OUR HOG BAIT FROM BEING REGISTERED AND SOLD IN TEXAS. WE HAVE BEEN THREATENED WITH MANY LAWSUITS WHICH ARE INTENDED TO PUT US OUT OF BUSINESS. WE ARE A SMALL COMPANY OF 12 PEOPLE UP AGAINST LAW FIRMS WITH OVER 500 LAWYERS.
THE CASE IS ON-GOING, BUT THEY ALSO HAVE WRITTEN TO EPA TO DEMAND THE CANCELLATION OF OUR FIFRA REGISTRATION.

SCIMETRICS MANUFACTURERS A WARFARIN-BASED KAPUT FERAL HOG BAIT AND THIS IS MY PRIMARY TOPIC TODAY. ITS ADVANTAGES AND USES, ARE THE STATUS OF OUR EXTENSIVE RESEARCH INTO HOG BAIT SAFETY AND THE LACK OF SECONDARY TOXICITY TO WILDIFE AND DOMESTIC ANIMALS. KILLED HOGS HAVE LOW RESIDUES OF WARFARIN BUT THE BLUE DYE WARNS PEOPLE IF THE ANIMAL CONSUMED BAIT.

HOWEVER, SINCE I HAVE SPOKEN TO GROUPS BEFORE ABOUT THE HOG BAIT, I HAVE BEEN RECORDED UNKNOWINGLY, AND MY COMMENTS TAKEN WERE OUT OF CONTEXT IN ORDER TO BOLSTER THE OTHER SIDE'S POSITION THAT KAPUT SHOULD NOT BE SOLD OR REGISTERED, AT ALL, ANYWHERE. SO I AM REQUESTING THAT NO ONE RECORD OUR MEETING TODAY OR MISUSE MY COMMENTS.

Background

- University of Southwestern Louisiana (UL)
- Texas A&M University
- University of California, Berkeley
- Peace Corps – Niger, Africa; Wildlife Park
- US Fish & Wildlife Service – International Programs - Bangladesh
- Genesis Labs 1989
- Scimetrics Limited Corp. 1999

Crop Damage & Landscape Modification

Feral Hogs Spread Some 30 Diseases & 37 Parasites to Livestock, Pets, and Humans (USDA)

- Brucellosis
- Leptospirosis
- Pseudorabies
- Tularemia
- Swine flu
- Trichinosis
- Toxoplasmosis

Predation

Livestock (sheep)

www.seaturtle.org

Sea Turtles

Deer Fawn

Area Comparison: Georgia vs Texas- Feral Hog Consumption of Herps Only

- 284 sq. mi.- Georgia study area (Fort Benning). 3.16 million reptiles & amphibians
- Texas area 268,580 sq. mi. = 2.99 billion reptiles & amphibians - # does not include ground nesting birds, domestic animals, small mammals, other wildlife
- Impact on endangered species?
- Feral hogs compete for food with wildlife, including deer, turkey, and black bear.

Distribution of Feral Swine Over Time

2010

2004

1982

Feral Swine Identified

No Feral Swine

Feral Hog Bait Development Timeline

- 2000 Grant from Hawaii Community Foundation to work on a feral hog toxicant.
- 2007 Applied for USDA grant via SBIR to test toxicants.
- 2008 Grant awarded and pen studies conducted with USDA and TAMU in Kingsville, Texas.
- Texas requests application for Special Local Needs Permit
- 2010-16 Annual meetings with the EPA to review plans for developing a hog bait, along with slide shows describing hog problems and need for solution.
- 2013 Applied for an Experimental Use Permit with the US EPA.
- 2014 & 15 Permits issued by EPA and State of Texas to conduct field testing of bait. Started research in September 2015
- 2015-17 – Grants provided by Texas Dept. of Agriculture,
- January 3, 2017 EPA Issues Registration of Kaput Feral Hog Bait

WHY WARFARIN?

- Discovered during 1920's; WARF
- Approved as a human drug in 1954
- One of 1st patients using Coumadin was President Dwight D. Eisenhower, later President Richard Nixon
- Antidote Vitamin K
- Half-life in blood 42 hours
- Does not bioaccumulate, unlike 2nd generation anticoagulants
- RP began research on warfarin in 1979

Why Low-Dose Warfarin?

- Hogs are very susceptible
- Low concentration – 250 vs 50 ppm
- Human drug
- Non-Target species- low toxicity at low dose

Kingsville, Texas 2009

DPN vs Warfarin

Feral Hogs Exposure to Warfarin Baits Over Time (days) 2009

(%) Warfarin	1 day	2 day	3 day	5 day
0.025	2/4	4/4		
0.0125			3/4	4/4
0.005			1/4	4/4

EPA Requested Data Collection

- Area treated: 8^2 km (2015)
- Amount of bait used: 0.005% warfarin plot 330 lbs (0.02 lb. or 7.5 g (0.25 oz) warfarin)
- Total Bait Spillage: 1.05 lbs or 23 mg warfarin
- Hog Carcass Fate: Coyotes, Turkey Vultures, Crows, Feral Hogs
- Non-target Hazard Searches: 97 searches with no kills other than hogs
- Tissue residues in hog livers averaged 3.7 mg/kg

Fat Soluble Dye

- Fat soluble dye- visible within 3-6 hours
- If hunter kills a feral hog, knows it has consumed bait
- If consumed within 3 hours, GI tract blue

Hog Meat Consumption

- 50 kg (110 lb) hog eats 2.1 kg (4.6 lbs) over 24 hours
- Amount of warfarin 105 mg
- Maximum potential exposure if entire pig is consumed, less GI tract = 75 mg
- If 1 kg hog is consumed = 1.5 mg, highest was 5 mg/kg
- Daily dose for humans on warfarin – 2-10 mg/day

Field Efficacy of a Feral Hog Bait Containing 0.005% Warfarin

North Texas 2015-17

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Bait Application – 3 years

	Plot Area (acres)	Total Bait Applied (lbs)	Baiting Rate (lbs/ac)	Warfarin g/ac	Spillage g & oz
2015 wax bait	1,977	919	0.466	0.011	466 16.6
2016 Cracked corn	1,236	1,547	1.25	0.028	31 1.4
2017 Whole/ cracked corn	1,236	2,292	1.86	0.042	3,840 137

Field Efficacy 2015 -17

Efficacy based on	2015	2016	2017
Radio telemetry	100%	-	-
Trail camera counts at feeders	98.7%	93.7%	94.7%
Bait consumption (kg/wk)	97.8%	96.9%	88%

Carcass Collections and Necropsies

- Use of Radio-telemetry and GPS
- Hazard Searches
- Necropsies (signs of bait consumption)
- Liver Collection

Hog Feeders

- Controlled exposure of bait
- Maximize containment of bait
- Use feeders only with heavy lids that minimize non-target access to bait
- Applicable feeder prototypes currently being tested –

  heavier weights


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Hog Stopper® Feeder Developed 2015-17

- Heavy 16 gauge sheet metal
  - Door 14 gauge weighs 17.2 lbs., total 127 lbs.; heaver unit 146 lbs.; 1-sided feeder 78 lbs.
  - 198 lb model with 24 lb doors
- Guillotine doors at opposite ends
- Keeps non-target wildlife out
- Doors opened for 3-6 weeks for feed conditioning
- After, doors lowered and bait added


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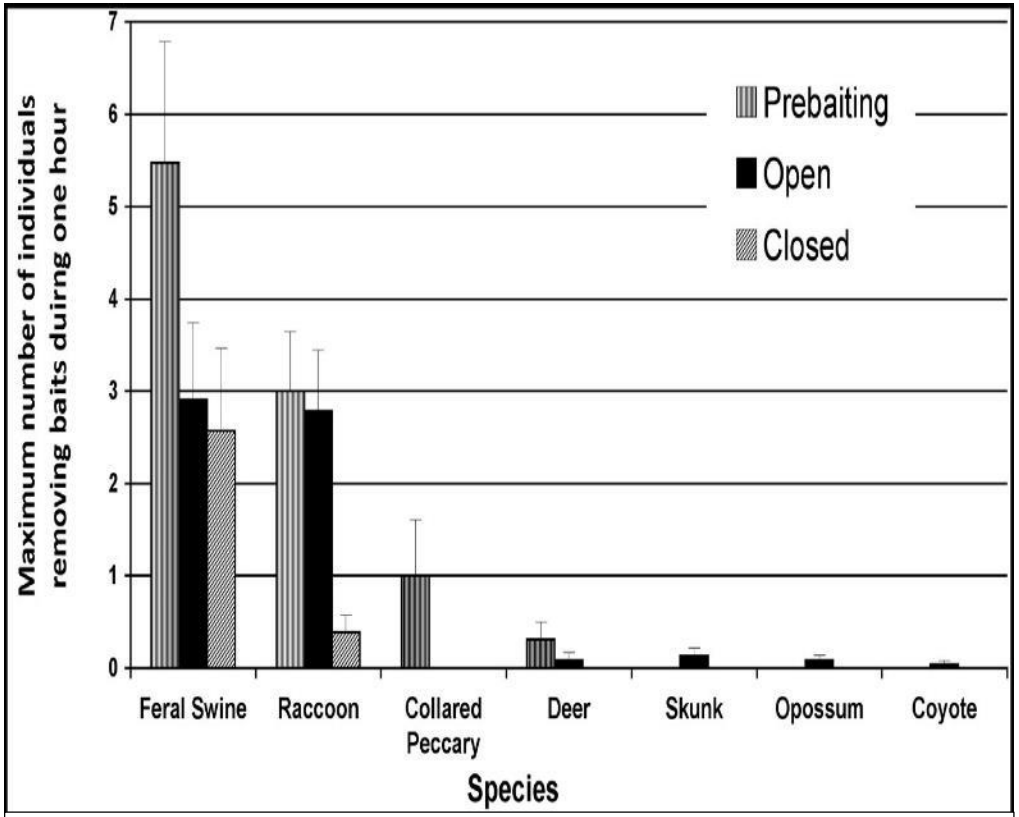

Figure 3. Mean (SE) maximum number of individuals removing baits during one hour by period (prebaiting with corn, open with HOG-GONE® baits, and closed with HOG-GONE® baits) during HogHopper™ trials conducted in Texas (28 trials), Florida (2 trials), Alabama (2 trials), and Oklahoma (1 trial) from December 2010 - August 2011.

Unit weight 52 lbs, doors 7.7 lbs

Campbell, T.A. et al. 2012. Preliminary assessment of the HogHopper for excluding non-target wildlife. Proc. 25th Vertebr. Pest Conf. pp 333-336.

Feeder Comparison

	HogHopper[1]	Hog Stopper™	Hog Stopper-B
Weight (lbs)	52	140	198
Door weight (lbs)	7.7	17	24
Secure Feeder with	Rods	T-posts	T-posts
Success at bait	Yes	No	No

[1]Campbell, T. et al. 2012. Preliminary assessment of the HogHopper™ for excluding non-target wildlife. Proc. 25th VPC. Pp 333-336.

Non-targets in feeder area

Species Group	2015	2016	2017
Rat/mouse	375	223	87
Birds	824	1,572	922
Reptiles	3	0	0
Deer	185	97	1,123
Large mammal[1]	11	6	54
Medium Mammals[2]	331	704	747

[1]Coyote, bobcat, American badger

[2] Raccoon, rabbits, porcupine

Raccoon Access to Feeders on Treatment Plots

Year	Total Individuals Approach	Attempts to Access	Successful Attempts
2015	59	99	13
2016	157	106	13
2017[1]	168	184	0

[1]17-lb doors

Raccoon Time at Feeders in Minutes

Year	Mean Duration	Maximum Duration	Minimum Duration
2015	6	38	1
2016	2	32	1
2017	3	28	1


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Deer Activity at Feeders 2017

Plot	Pre-T # deer	Pre-T Attempts	Treat # deer	Treat Attempts	Post-T # deer	Post-T Attempts
Control	255	8	48	12	20 92.2%[1]	0
Treat-1	204	9	61	5	N/A	N/A
Treat-2	287	18	204	13	44 84.7%	6
Total	746	35	313	30	64 91.4%	6

[1]Percent decline in activity

Black Bear Study, Alabama 2016

Black Bear in the US

- Florida 2015 hunting season
  - 320 black bear harvested by hunters in 2 days
  - 112 euthanized - at risk to public
  - Animal rights legal implications
- Louisiana – 2012 two bear poached for paws and gall bladder in Iberia and Point Coupee Parishes. Poaching on the increase in most states.
- Colorado – Bear seriously injured camper on July 9, 2017
  - 7 bear euthanized in Colorado July 8-12, 2017 – threat to people

Most states share similar stories

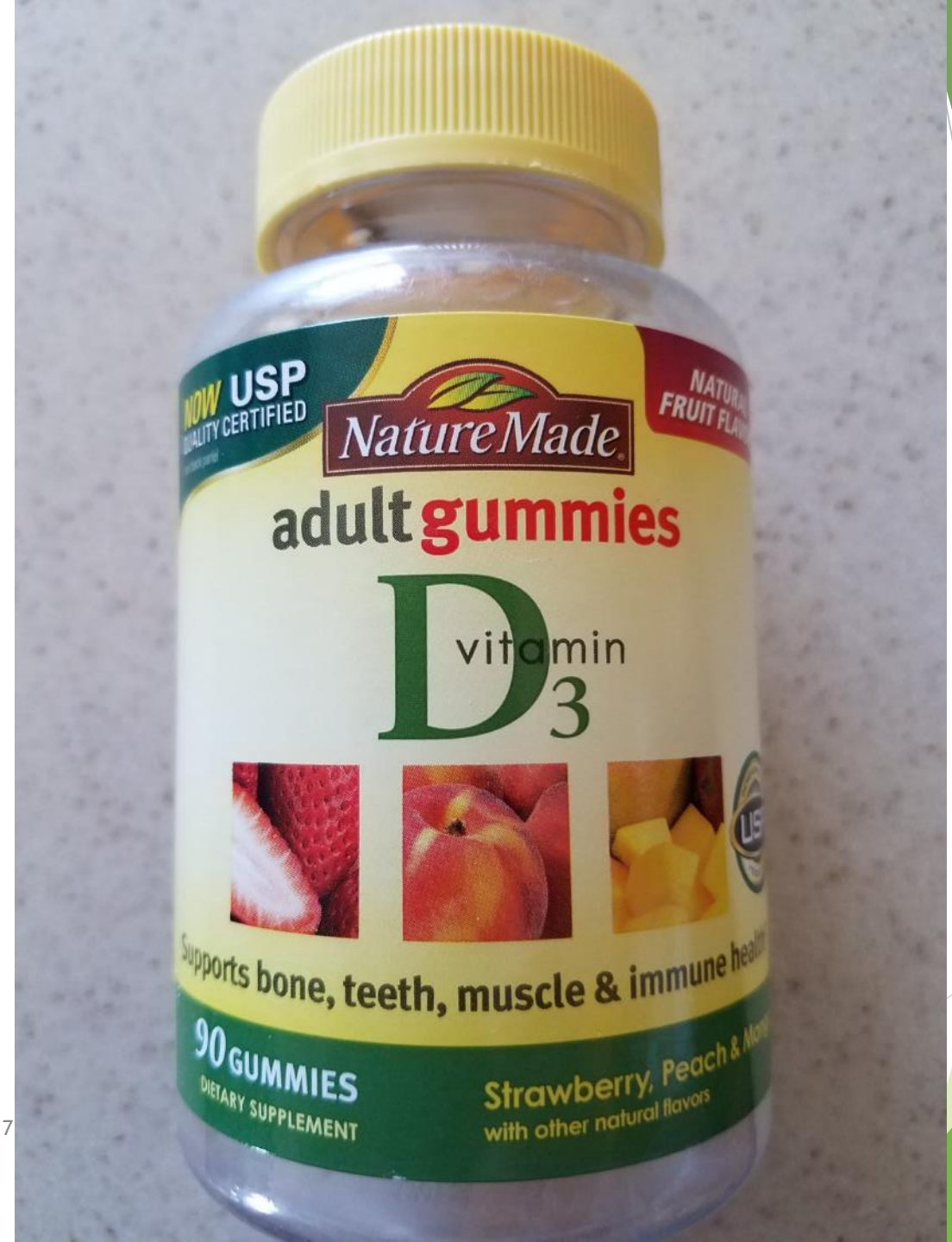
Dose Makes the Poison

- Australia study contained 0.09% warfarin, 18 times more than Kaput.
- Warfarin Rat & Mouse Baits contain 0.025% warfarin in the US
- Kaput Feral Hog Bait Contains 0.005% warfarin, or 1/5th the concentration of US rat bait products
- All chemicals are inherently toxic
- Goal is to arrive at a reduced risk level to ensure efficacy while reducing danger to wildlife and other non-target animals

Pesticide Signal Words as Defined by the USEPA

- Danger-Poison- highly toxic, Category 1
  - LD_{50} < 50 mg/kg
- Warning – Moderate Toxicity, Category II
  - LD_{50} >50-500 mg/kg
- Caution – Low Toxicity, Category III
  - LD_{50} > 500-5,000 mg/kg
- Caution – Very low toxicity, Category IV
  - LD_{50} > 5,000 mg/kg

- Water > 90 g/kg
- Aspirin 300 mg/kg
- Caffeine 192 mg/kg
- Nicotine 50 mg/kg
- Vitamin D3, 37 mg/kg
- Kaput Feral Hog Bait > 60,000 mg/kg in pigs



Cholecalciferol (0.075%) – Vitamin D3

Coumadin (warfarin) a Human Drug

- Warfarin dosing information
- Usual Adult Dose of Warfarin for Congestive Heart Failure:
- Initial: 2 to 5 mg orally or intravenously once a day for 1 to 2 days, then adjust dose according to results of the International Normalized Ratio (INR) or prothrombin time (PT).

  Maintenance: the usual maintenance dose ranges from 2 to 10 mg orally or intravenously once a day.

Toxicity of Kaput Feral Hog Bait® to Wildlife- (A.P. Meehan 1984)

- Hogs (40 kg)- Acute exposure 3 mg/kg = 2.4 kg bait
  - Chronic (7 days) 0.4 mg/kg/day = .32 kg/day some kill
- Turkey: 7 kg bird, 95 mg/kg x 19 days = 13.3 kg bait/day
- Bobwhite quail- LC_{50} 625 ppm (EPA-practically non-toxic)
- Dog[1]- acute 20 mg/kg = 8 kg bait for 20 kg dog
  - 5 mg/kg x 15 days = 2 kg bait/day
- Cattle- 500 mg/kg - 400 kg steer required 4,000 kg feral hog bait

[1]Jacobs,. W.W. 1994. Pesticides federally registered for control of terrestrial vertebrate pests. In, Prevention & Control of Wildlife Damage. Pages G1-G156 University of Nebraska.

Primary Toxicity Data on Warfarin (0.025%) to wildlife – Nutria Bait Development 1998

- Mallard 14 days. No effects
- Bobwhite quail 14 days. No effects
- LD_{50} bobwhite >10,000 mg/kg
- LD_{50} mallard ducks >10,000 mg/kg

Warfarin concentration 5 times Feral Hog Bait

Secondary Toxicity Data Submitted to EPA (0.05% warfarin)

- Warfarin (10x[1])-killed rats fed to magpies. No effects.
- Warfarin (10x)-killed prairie dogs fed to European ferrets. No effects.
- Warfarin (5x)-killed rats fed to Alligators. No effects.
- Warfarin (10x) fed to mallards, 14 days. No effects.
- Warfarin (10x) fed to bobwhite quail, 14-days. No effects.

[1]Warfarin concentration 10 times Kaput Feral Hog Bait

Comparison between toxicants

Toxicity	Warfarin[1]	Sodium nitrite[2]
LD^{50} ducks	>10,000 mg/kg	68.5 mg/kg
LD^{50} quail	>10,000 mg/kg	619 mg/kg
LD^{50} chicken		68.5 mg/kg
LD^{50} cattle	500 mg/kg[1]	Lethal to cattle in small amounts

[1]A.P Meehan, 1984
[2]Shapiro et al 2016

Upcoming Research

- Texas A&M University
  - feeder study- non-target access
  - Field efficacy
- Louisiana Dept. Wildlife & Fisheries – feeder study hog, raccoon, black bear access to bait.
- Auburn University: black bear- feeder access study.

Accepted Facts

- 40,000 deaths caused by aspirin and painkillers each year (American Journal of Medicine)
- 92 human fatalities each day from car accidents (33,580)
- 88,000 people die each year from alcohol abuse
- In 2015, a total of 13,286 Americans were killed by firearms
- 2.9 million companion animals euthanized annually
- 1,230,000 deer are killed by automobiles each year
- Pesticides are expected to generate zero risks

Questions